

**REMARKS**

Claims 1-11 are pending in this application. By this Amendment, claims 2-9 have been amended merely to better conform with U.S. claim practice. Claims 10 and 11 have been added.

No new matter is added by this Amendment. Support for claim 10 is found, for example, on page 21, lines 6-18 in the original specification and in Figure 3. Support for claim 11 is found, for example, on page 14, lines 13-20 in the original specification and in Figure 1.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Wood in the June 9, 2004 interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks.

Reconsideration of this application is respectfully requested.

**I. Information Disclosure Statement**

Applicants note that most of the references listed in the August 5, 2003 Information Disclosure Statement (IDS) were acknowledged as considered by the Examiner. However, the last two Japanese references on the second page of Form PTO-1449 were not initialed. Submitted with this Amendment is a clean Form PTO-1449 listing these two references.

Acknowledgment is respectfully requested for the previously submitted documents JP 9-159882 and JP 9-318834.

**II. Rejection Under 35 U.S.C. §102(b)**

Claims 1-3, 5 and 7-9 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 4,989,934 to Zavracky et al. (hereinafter referred to as "Zavracky"). The rejection is respectfully traversed.

Zavracky describes a silicon (Si) wafer 10 having a silicon circuit 12 and a light emitting device (LED) 20 formed in the Si wafer 10. The Si wafer 10 is etched to provide

alignment structures in the Si wafer 10. A groove is made adjacent to the LED 20 and serves to hold and align an optical fiber in alignment with the emitted light beam while a well is defined adjacent to a light detecting device for an equivalent purpose.

According to the Patent Office, the Si wafer 10 is a semiconductor chip that is supported on a top surface of a substrate 82. Zavracky identifies 82 in Figure 4b as a "package ferrule."

Claim 1 requires that an interconnect pattern is formed on the first surface of a substrate and that the interconnect pattern is electrically connected to a semiconductor chip. Zavracky does not describe or suggest an interconnect pattern formed on the top surface of the package ferrule 82 and also fails to describe or suggest an interconnect pattern anywhere on package ferrule 82 that is electrically connected to the Si wafer 10.

In addition, claim 1 requires external terminals provided over the second surface of the substrate, the external terminals being electrically connected to the interconnect pattern formed on the first surface of the substrate. In Figure 4b of Zavracky, the pin is not over the second substrate. Moreover, the pin is shown to be electrically connected to the wafer 10. This confirms that there is no interconnect pattern on the first surface of package ferrule 82 to which the pin is electrically connected.

For at least the foregoing reasons, Applicants respectfully submit that Zavracky fails to anticipate the subject matter of claim 1 and claims dependent therefrom.

For all the foregoing reasons, reconsideration and withdrawal of this rejection are respectfully requested.

### **III. Rejections Under 35 U.S.C. §103(a)**

Claim 4 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Zavracky in view of U.S. Patent No. 6,301,401 to La (hereinafter referred to as "La"). Claim 6 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Zavracky in

view of U.S. Patent No. 6,100,5951 to Jaouen et al. (hereinafter referred to as "Jaouen").

These rejections are respectfully traversed.

As described above, Zavracky fails to describe or suggest the recited elements of claim 1. The Patent Office has relied on La for the use of a resin for packaging the optical and electrical components of the optical module and Jaouen for an underfill material for a stronger mechanical bond between the components. However, even if Zavracky, La and/or Jaouen were combined as alleged by the Patent Office, the present invention still would not have been achieved because neither La or Jaouen remedy the deficiencies of Zavracky as described above.

For the foregoing reasons, reconsideration and withdrawal of these rejections are respectfully requested.

**IV. Conclusion**

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-11 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



James A. Oliff  
Registration No. 27,075

Michael G. Harms  
Registration No. 51,780

JAO:MGH/rav

Attachment:

Clean Form PTO-1449

Date: June 14, 2004

**OLIFF & BERRIDGE, PLC**  
**P.O. Box 19928**  
**Alexandria, Virginia 22320**  
**Telephone: (703) 836-6400**

DEPOSIT ACCOUNT USE  
AUTHORIZATION  
Please grant any extension  
necessary for entry;  
Charge any fee due to our  
Deposit Account No. 15-0461